

March 24, 2008

Rick Keller
California Institute for Regenerative Medicine
210 King Street
San Francisco, CA 94107

Re: Review of CIRM Application

The goal of the engagement is to assist CIRM in the “value and functionality” evaluation of proposals submitted for Part Two on the Major Facilities Grant Program. I was asked to provide an opinion that will include a short critique of the design and include some measurement of the relative merit on a letter grade.

Boston
New York
Baltimore
Washington DC
Buffalo
Toronto
Chicago
St. Louis
Calgary
Vancouver
Victoria
San Francisco
Los Angeles
Shanghai

The process used for the evaluation of the applications entailed several steps. First, I met with the Staff, and using an application as a model, we agreed to the approach and what useful data could be extracted into a spread sheet. Upon receiving the 12 submissions, I performed a quick review to get a feel of the materials and the completeness of data, such that if there were any serious questions or lack of data, the Staff could contact the applicants. The next step was to carefully read each submission to understand the programs proposed and the facilities identified to accommodate these programs. I then met with the Staff to review the data each of us had extracted and to discuss the issues and merits of each application and to share any findings to date. The final step was to compose the review comments and pertinent data and to assign a grade to each submittal as to the functionality and value.

My approach to the review was to look at each application in context of current functional trends in laboratory planning and design of research buildings around the country using personal knowledge, and publications as references. I also compared the metrics of spaces to see how the applications measured up to their peers. I looked at the innovations identified to see if they were truly innovative or merely the same as all other good laboratory buildings. Note some of the “innovations” identified were operational and not physical and as such I looked to see if the operational innovation was reflected in the building planning. Did it walk the talk?

In Part 1 the “scientific programs” were reviewed. In Part 2 the focus is on the buildings – the bricks and mortar, and how well the different plans provide research space compatible with the scientific mission statement and implement current laboratory planning trends. The plans were evaluated for function focusing on the following key components required for a successful research building.

- Flexibility for programmatic changes
- Critical mass coupled with scientific interaction spaces
- Dedicated Support spaces
- Specialized Instrumentation Core Support Spaces in the Building

The proposals were also evaluated for value using the following data as a reference point.

- The Net/Gross sf ratio of the overall building
- The Building cost / gsf
- The asf of Lab + Lab Support + PI Office space / PI
- The ratio of Lab to Lab Support
- The asf Core / PI
- The group 2 equipment budget / PI
- CIRM funds / PI

Trends in laboratory planning

For over a decade, Researchers and Facility owners have been requiring their design teams to provide flexible laboratories and building designs that foster both casual and formal interaction between the scientists. The proposals reviewed discussed the need for flexibility, and the advantage of scientific interaction to advance the knowledge and understanding of hESC. One of the biggest changes in laboratory design has been the installation of flexible benches that are connected to overhead utility bars, allowing for the easy modification of bench height or total removal for new instrumentation.

The advantage of interaction between researchers has been stated over and over in the applications. How the spaces within a building are put together can enhance or inhibit interactions. Often success or failure can only be measured after the building has been occupied; however there are planning rules that, when done properly, will enhance the interactions and, thereby, the scientific innovations. Simple things such as providing enough conference/meeting space, places outside the lab to have food or beverages, and casual talk space at the intersections of the building circulation routes.

Modern labs are very equipment-intensive. No longer is equipment limited to simple refrigerators and centrifuges. Much of the instrumentation is computer driven, analytical instrumentation that may be coupled with robotics, and much of it is in shared cores to maximize utilization, such as dedicated tissue culture rooms, core facilities with large and costly equipment, and nano-fabrication. The increase in equipment/instruments has pushed the recommended ratio of lab support space to lab space to 1:1.

I assigned a letter grade A-F to each application for functionality and for value. For functionality the grade measures how well the proposal delivers the objectives of flexibility, interaction, access to necessary cores to perform the stated programmatic mission and how well it connects with the shared cores on campus. I also looked at how it measures up to its peers in delivering a building/space that will assist in recruitment of critical faculty. For Value, I compared the metrics of the projects in relationship to their peer institutions and to each other. Here I tried to look at the programmatic mission and whether the project delivered on that mission. For example, one project had very high cost, but located the building in the programmatically ideal location to meet or enhance their mission. On the other hand, another project had moderate cost, but included spaces that were not directly related to delivering their mission.

I have attached my reviews for distribution to the FWG and I look forward to the FWG meetings on April 4th and 5th to answer any questions.

Sincerely

Steve Copenhagen
Principal
Cannon Design